

DISCUSSION OF THE CLAIMS

Claims 1, 3-6, 8-12, and 14-22 are active in the present application. Claims 21-22 are new claims. Support for new Claim 21 is found in original Claim 16. Support for new Claim 22 is found in Table 2 on page 18 of the specification. Independent Claim 1 is amended to include the features of Claim 2 and to recite a range of rutile. Support for the amendment is found in the original claims and in Table 2 on page 18 of the specification. Claims 2, 7 and 13 are canceled claims.

No new matter is added.

REMARKS/ARGUMENTS

Independent Claim 1 is now drawn to a flame-hydrolytically produced titanium dioxide powder having certain BET surface area and rutile content properties. Applicants submit that the flame-hydrolytically produced titanium dioxide powder of present Claim 1 is unobviously different from the titanium dioxide powders disclosed in Pratsinis (U.S. 5,698,177).

Applicants draw the Office's attention to the tables in columns 11-13 of Pratsinis. Table 2 of Pratsinis (see below) describes a relationship of BET area and anatase content. The table shows that the BET surface area of the titanium dioxide powder of Pratsinis increases as the anatase content increases. Table 2 describes a powder having a minimum anatase content of 87%. It is evident from Table 2 as the anatase content increases, e.g., increases from 87 to 93% for powders F1 and F2, BET likewise increases from 35 m²/g to 54 m²/g.

Table 2 does not suggest a titanium powder having an anatase content of at most 80% (e.g., a rutile content of at least 20%) which concurrently has a BET area of 40-60%. Applicants submit that those of ordinary skill in the art would expect that the powder described in Table 2 of Pratsinis would have a BET area that is less than 35 m²/g if such a titanium powder had an anatase content of 85%. Such a conclusion readily follows from the trends of Table 2 of Pratsinis.

TABLE 2

Powder	BET Area (m ² /g)	Rutile Content (wt %)	Anatase Content (wt %)
F1	35	13	87
F2	54	7	93
F3	78	6.5	93.5
F4	110	<0.1	>99.9

Likewise, in the table bridging columns 12 and 13 of Pratsinis, the data describe trends that teach away from the presently claimed invention.

Applied Voltage (kV)	<u>Negative Polarity</u>		<u>Positive Polarity</u>		<u>Bipolar</u>
	Specific Surface Area (m ² /g)	Rutile Content (wt. %)	Specific Surface Area (m ² /g)	Rutile Content (wt. %)	Specific Surface Area (m ² /g)
0	35	17.5	35	17.5	35
4	44	17	42.5	16	
5	55	10	61		46
6	72	9	70	7	
7					66
8	73	6	75	7	
9	74	7.5			
10			76	6.5	

As shown in the table above, none of the Pratsinis titanium powders have an anatase/rutile content encompassed by the present claims.

Further, Applicants submit that the data of the above tables teach away from the presently claimed invention. For example, the data of the tables above teach that when the anatase content is increased the specific surface area decreases. This is readily evident from the data of the table above which demonstrate a direct correlation between decreasing specific surface area and increasing rutile content. The data above teach that one of ordinary skill in the art would expect that a titanium dioxide powder having a rutile content of greater than 20% would have a specific surface area lower than the minimum 40 m²/g of the present claims.

Applicants thus submit that the presently claimed invention is not obvious in view of Pratsinis.

Applicants submit that present Claim 1 is likewise not obvious in view of Zhang (U.S. 7,217,407). In the Office Action of April 10, 2009, the Office asserts that Applicants' calculation of the half width of the Zhang particles should take into account the Zhang

surface area. Applicants submit that this is not correct. Half width is a property inherent to a powder and is determined independently from surface area. In this regard Applicants draw the Office's attention to the last paragraph on page 5 of the present application which clearly discloses that the half width of the primary particle distribution is obtained by image analysis. In simple terms, such an analysis compares only the size, e.g., diameter, of particles of the powder in order to determine a half width of the primary particle distribution. Such a determination is made independently from surface area.

The present invention takes into account that a desirable half width shows advantages at different half widths for different surface areas. This relationship of half width and surface area is demonstrated in Figure 2 of the present specification. In one embodiment, Applicants' invention is described by the area between the bold lines of Figure 2 of the present specification. Nonetheless, the halfwidth of the TiO_2 powder is determined independently from BET area.

In the amendment filed in the present case on December 15, 2008, Applicants calculated the half-width properties of the particles described in the Zhang patent. Applicants determined a half width value of 27 and 22 mm for the Zhang particles described in Figure 1. The Zhang particles have a surface area of about $100 \text{ m}^2/\text{g}$ (see Table 2 in column 11 of Zhang). It is readily evident that the Zhang particles are far outside the presently claimed invention as shown in a marked up copy of Figure 2 below. Figure 2 below is obtained by marking half width values of 22 and 27 mm at a BET surface value of 100 m^2 . It is readily evident that the Zhang powders lay outside the claimed invention.

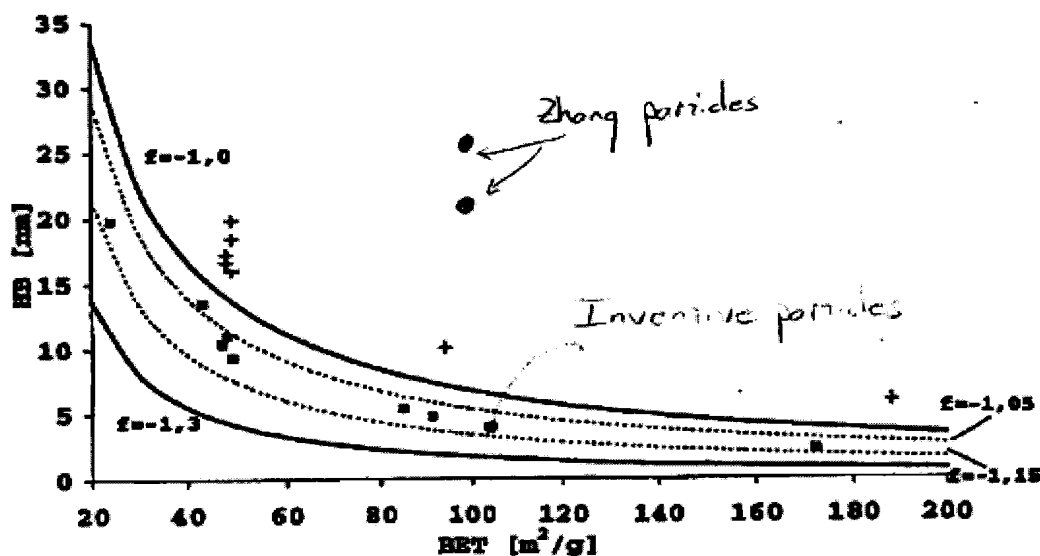


Fig. 2

During a discussion with Examiner Hailey on May 20 2009, Applicants' U.S. representative explained that the half width recited in the present claims is a property of the primary particle distribution that is independent of the surface area. Applicants' representative further pointed out that Zhang fails to disclose or suggest any powder lying within the range of titanium dioxide powders in, for example, Figure 2 of the present application.

Applicants thus submit that Zhang fails to disclose or suggest the presently claimed invention. For the reasons discussed above, Applicants submit that all now-pending active claims are patentable over the cited art and respectfully request withdrawal of the rejection.

REQUEST FOR REJOINDER

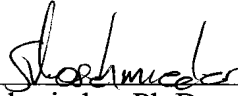
Upon determining that the subject matter of the present claims is allowable, the Office is requested to rejoin and allow presently withdrawn Claims 16-18 and 20. Each of the withdrawn claims is directly or indirectly dependent from Claim 1 and should therefore be allowable upon a determination that the subject matter of Claim 1 is allowable.

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